

Benefits of Self-Measurement of Blood Pressure in Hypertensive Patients Treated on An out Patient Basis in The Cardiology Department of The Ignace Deen National Hospital

Baldé El Hadj Yaya¹, Béavogui Mariama¹, Barry Ibrahima Sory¹, Bah Mamadou Bassirou¹, Camara Abdoulaye^{1*}, Baldé Mamadou Aliou¹, Sylla Ibrahima Sory¹, Koné Alpha², Soumaré Ousmane¹, Baldé Mamadou Dadhi¹ and Condé Mamadi¹

¹Cardiology Department of Ignace Deen Hospital, Guinea.

²Hospital Cardiology Department, Guinea.

*Correspondence:

Camara Abdoulaye, Cardiology Department of Ignace Deen Hospital, 621 2266 81, Guinea.

Received: 07 February 2020; Accepted: 25 March 2021

Citation: Baldé El Hadj Yaya, Béavogui Mariama, Barry Ibrahima Sory, et al. Benefits of Self-Measurement of Blood Pressure in Hypertensive Patients Treated on An out Patient Basis in The Cardiology Department of The Ignace Deen National Hospital. *Cardiol Vasc Res.* 2021; 5(2): 1-3.

ABSTRACT

The objectives of this study were to study by self-measurement, the level of hypertension control in our hypertensive patients treated on an outpatient basis, to determine the frequency of controlled hypertensive patients, to identify the cardiovascular risk factors associated with uncontrolled hypertension and describe the treatment of our hypertensive patients. It is estimated that in 2025 almost three quarters of the hypertensive world population will live in developing countries, with a cumulative impact from the phenomenon of massive urbanization. Thus, the French Society of HTA defines self-measurement as the measurement of BP by the subject himself, conscious and voluntary. This was a prospective, descriptive and cross-sectional study that was carried out over a period of six (6) months from 08/01/2018 to 02/28/2019. Was randomly included in this study, all hypertensive patients followed on an outpatient basis, on antihypertensive treatment, having agreed to participate in the study after informed consent. In this study, conducted over a period of six months, we report the situation of 100 hypertensive cases treated on an outpatient basis in the cardiology department of the HNID. Among the 19 patients who were balanced, 12 were female versus 7 male, i.e. a respective percentage of 61.11% versus 38.9%. Our result is lower than that found by the results of the pilot study "Acti-HTA" where hypertensive controlled by Self-measurement of blood pressure reached 55% of subjects. This study allowed us to determine the clinico-biological factors associated with uncontrolled hypertension, treated on an outpatient basis in the Cardiology department of the HNID as well as the high prevalence of uncontrolled hypertension in 81% of cases with number more controlled in the evening than in the morning.

Keywords

Arterial hypertension, Self-measurement, Interest, Guinea.

Introduction

In fact, it is estimated that in 2025 almost three quarters of the hypertensive world population will live in developing countries, with a cumulative incidence of the phenomenon of massive urbanization [1]. In fact, recent surveys show that in the population aged over 65, the prevalence of hypertension is around 30 to 40% in rural areas, 40% in semi-urban areas in West Africa, including Guinea is part of, and 50 to 60% in a mixed population of South Africa [1]. Blood pressure measurement is used to diagnose hypertension, to decide on treatment and to evaluate its long-term

efficacy in subjects who are often asymptomatic [2]. To aid in a more accurate assessment of BP, home measurement techniques have been developed and shown to be beneficial in the charge price of hypertension. These are 24-hour ambulatory blood pressure measurement (ABPM) and home self-measurement [2]. Thus, the French Society of HTA defines authorization as the measurement of BP by the subject himself, conscious and voluntary. It must be practiced with a rigorous method according to a protocol well established by learned societies [2].

The HAS recommends self-measurement before the start of antihypertensive treatment when the consultation BP is in the range 140-179 mmHg / 90-109 mmHg (in the absence of vascular

disease) and complete in the advanced subject (in the absence of cognitive disorders) [2]. In any event, Self-measurement of blood pressure makes it possible to reduce unnecessary treatments, which are particularly harmful in subjects already susceptible to developing orthostatic hypotension phenomena due to damage to the vegetative nervous system. The Self-measurement of blood pressure contributes to a better adaptation of the dosage of drugs to blood pressure targets, and makes it possible to monitor that the effectiveness of the prescribed treatments covers the entire 24 hours [3]. Ambulatory blood pressure measurement (ABPM) has shown for many years that its values were better correlated with target organ damage, compared to those noted in consultation. Within these ambulatory techniques, the recent development of automation has considerably simplified the collection of these measurements [4]. Self-measurement of blood pressure can detect the white coat effect (confirmation of the diagnosis of hypertension), and can help assess the real effectiveness of therapies. In addition, it improves treatment adherence [4]. Data from the SHEAF study [5] suggest that measuring BP at home is more reliable in prognosis than measuring BP in consultation. The aim of this study was to involve our patients in controlling their blood pressure, to encourage medical staff to prescribe self-measurement, in order to know the blood pressure profile and the treatment of our hypertensive patients treated on an outpatient basis. The objectives of this study were to study by self-measurement, the level of control of hypertension in our hypertensive patients treated on an outpatient basis, to determine the frequency of controlled hypertensives, to verify the cardiovascular risk factors associated with the Uncontrolled hypertension and describe the treatment of our hypertensive patients.

Methodology

It concerns a prospective, descriptive and cross-sectional study which was carried out over a period of six (6) months from 08/01/2018 to 02/28/2019. Were included randomly in this study, the all hypertensive patients followed on an outpatient basis, on antihypertensive treatment, who agreed to participate in the study after informed consent. We used electronic blood pressure monitors, all validated by the French Agency for the Safety of Health Products (AFSSAPS) and the National Agency for Medicines Safety (ANSM) brand BP103H and Omron. The patients carried out 3 successive measurements, 3 times in the morning and 3 times in the evening for 3 consecutive days, at regular times, seated, after 5 minutes of rest with at least an interval of one minute between the catches. The results were noted on a pre-established collection sheet in accordance with the standards of the French HTA society and the HAS. [7]. HTA was considered balanced: When the mean of the home BP readings was 135/85 mmHg and unbalanced: When the mean of the home BP readings was \geq 135 mmHg for systolic and / or 85 mmHg for the diastolic. The data analysis was done using the EPI software. Info 7.2.2.

Results

In this study, conducted over a period of six months, we report the situation of 100 hypertensive cases treated on an outpatient

basis in the cardiology department of the HNID. We found that 19 hypertensive patients were balanced, ie 19% against 81 unbalanced hypertensive patients, or 81% (Table 1). Among the 19 patients who were balanced, 12 belonged to the female sex against 7 of the male sex, ie a respective percentage of 61.11% against 38.9%. Hypertensive patients were divided according to the associated cardiovascular risk factors (Table 2). In Table 3, unbalanced hypertensive patients were divided according to antihypertensive treatment.

3 Day Self Measurement	Number	Percentages
Women	12	61,11%
Men	7	38,9%
Total	19	100%

Table 1: Total distribution of balanced patients according to gender during the 3 days of authorization in the morning and evening.

Cardiovascular Risk Factor	Frequencies	Percentages
Sédentary	89	89%
Abdominal obesity	48	48%
Métabolic syndrome	20	20%
Dyslipidemia	17	17%
Type 2 Diabètes	12	12%
Smoking	7	7%
chronic rénal failure	1	1%

Table 2: Distribution of patients according to associated CV risk factors.

Average blood pressure 24-hour self-measurements	Frequencies	Percentages	
Bitherapy	Balance	13	20,31%
	No balance	51	79,69%
	Total	64	100%
Monotherapy	Balance	6	18,20%
	No balance	27	81,80%
	Total	33	100%
Tritherapy	No Balance	3	100%
	Total	3	100%

Table 3: Link between antihypertensive treatment modalities and unbalanced patients.

Discussion

After analyzing the blood pressure figures of our 100 patients in the morning and evening automation over 3 days, we found that 19 patients were balanced, ie 19% versus 81 unbalanced patients, or 81%. Among the 19 patients who were balanced, 12 were female versus 7 male, ie a respective percentage of 61.11% versus 38.9%. Our result is lower than that found by the results of the "Acti-HTA" pilot study [6] where hypertensive blood pressure controlled by Self-measurement of blood pressure reached 55% of subjects. From these results, we find that the vast majority of our patients are not balanced in the morning.

This explained that the antihypertensives they use do not cover the 24 hours because despite its variability, blood pressure is supposed to be low in the morning. This non-control could also be explained by the fact that many of our patients do not respect the hygieno-dietetic measures, associate several risk factors and their adherence to the treatment leaves something to be desired because of the low income of the population and the high cost. management of hypertension. The low rate of control of our patients could also be explained by the fact that the prescription of antihypertensive drugs in our patients does not take into account blood pressure objectives, the molecules do not cover the 24 hours and the patients are not regular at the scheduled appointments. By their doctors for the follow-up of their disease. After analyzing the cardiovascular risk factors associated with our patients according to whether they are balanced or not, we found that the non-control of hypertension was also linked to the associated cardiovascular risk factors. Thus, 41 out of 81 unbalanced patients, i.e. 50.63% had at least two (2) cardiovascular risk factors associated with hypertension, 20 patients, or 24.70% had at least one cardiovascular risk factor associated with hypertension. And 10 patients or 12.34% had at least 3 cardiovascular risk factors associated with hypertension. Compared to recent studies, the prevalence of uncontrolled hypertension was 73% in England, 47% in the United States and only 34% in Canada [7], 53% in Poland [8], 54% in Burkina Faso [9], 65.5% in China among a population aged 60 or over [10]. The therapeutic modalities of our patients were dominated by dual therapy with 64 patients (64%) including 51 unbalanced (79.69%) against 13 balanced (20.31%), followed by monotherapy which included 33 patients (33%). Including 27 unbalanced (81.80%) against 6 balanced (18.20%) and finally the triple therapy was found in 3 patients (3%) who were all unbalanced. according to the FLASH survey carried out in 2014, 45% of hypertensive patients in France are treated with monotherapy, 36% with dual therapy, 15% with triple therapy and 4% with quadruple therapy [11].

In 2002, the team of Cushman et al. in the study ATALLAH had already shown that at least one treatment with dual antihypertensive therapy was needed to control most hypertensive people. Thus, in this cohort of 19,800 hypertensive patients treated, the average number of drugs per patient had fallen from 1.3 to 2, over a period of 5 years, thus making it possible to improve blood pressure control from 27.4% to 66% [12]. Furthermore, in the study by Gradman et al. aiming to compare the monotherapy versus the initial bitherapy on the occurrence of cardiovascular events and mortality, it was shown that the initial bitherapy made it possible to reach the blood pressure target more quickly than the monotherapy [13].

Conclusion

This study allowed us to determine the clinico-biological factors associated with uncontrolled hypertension, treated on an outpatient basis in the Cardiology department of the HNID as well as the high prevalence of uncontrolled hypertension in 81% of cases with

more controlled number in the evening to morning. This shows that the antihypertensive treatment of most of our patients is almost ineffective and does not cover the 24 hours.

References

1. Fourcade L, Paule P, Mafart B. Arterial hypertension in sub-Saharan Africa news and perspectives. *Medicine Trop.* 2007; 67: 559-567.
2. Mounier-Vehier C, Marboeuf P, Craeymersch C, et al. Self-measurement of blood pressure: gadget or tool to help the management of the hypertensive patient - Self-measurement of blood pressure at home: is it really useful for the management of arterial hypertension? *Lett Cardiol.* 2007: 4.
3. Bauduceau B, Hamon E, Bordier L. Self-monitoring of blood pressure in practice. *Metabolic Evil Medicine.* 2011; 5: 169-172.
4. Atallah A, Judges Mourad, Inamo J, et al. Use of self-monitoring devices in Guadeloupe in 2005; *ARCHIVES OF HEART AND VESSEL DISEASES*, tome 99, n° 12. 2006.
5. Bobrie G, Chatellier G, Genes N, et al. Self-measurement in elderly hypertensive patients. *JAMA.* 2004; 291: 1342-1349.
6. Osner P, Ott J, Steichen O, et al. Level of physical activity and ambulatory control of high blood pressure. Results of the "Acti-HTA" pilot study. *Ann Cardiol Angéiologie.* 2015; 64: 205-209.
7. Joffres M, Falaschetti E, Gillespie C, et al. Prevalence of hypertension, awareness, treatment, and control in national surveys in England, the United States, and Canada, and correlation with death from stroke and ischemic heart disease: a cross-sectional study. *BMJ Open.* 2013; 3: e003423.
8. Prejbisz A, Klocek M, Gąsowski J, et al. Factors associated with resistant hypertension in a large cohort of hypertensive patients: PolFokus study. *Pol Arch Med Wewn.* 2015; 125: 249-259.
9. Yaméogo NV, Kagambèga LJ, Millogo RCG, et al. Factors associated with poor blood pressure control in hypertensive black Africans: cross-sectional study of 456 hypertensive patients from Burkina Faso. *Ann Cardiol Angeiol (Paris).* 2013; 62: 38-42.
10. Yang L, Xu X, Yan J, et al. Analysis of associated factors of uncontrolled hypertension in elderly hypertensive patients in southern China: a cross-sectional community survey. *BMC Public Health.* 2014; 14: 903.
11. Girerd X, Hanon O, Pannier B, et al. Arterial hypertension in elderly subjects in France: treatment characteristics and frequency of cognitive complaint according to the FLAHS 2014 survey. *Annales de Cardiologie et d'Angéiologie.* 2015; 64: 145-149.
12. Cushman WC, Ford CE, Cutler JA, et al. Success and predictors of blood pressure control in various North American settings: antihypertensive and lipid lowering therapy to prevent heart attacks (ALLHAT). *J Clin Hypertens (Greenwich).* 2002; 4: 393-404.
13. Gradman AH, Parisé H, Lefebvre P, et al. Initial combination therapy reduces the risk of cardiovascular events in hypertensive patients: a matched cohort study. *Hypertension.* 2013; 61: 309-318.